þÿ U n i v e r s i t y s T h i r d M i s s i o n a t T a i t a R e s e a r c h S t a Wundanyi, Kenya : A Preliminary Evaluation Report

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2018

University's Third Mission at Taita Research Station in Wundanyi, Kenya

A Preliminary Evaluation Report

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DATE: November 2018

Photo credits: Petri Pellikka

Background

UH Faculty of Social Sciences has supported Dr. Mikko Rask's travels for the preparation of grant proposals to research projects related to the reforestation of Sahara. In that context, he has started to collaborate with Prof. Petri Pellikka, who directs Taita Research Station (TRS) in Wundanyi, Kenya. Mikko was invited to the Taita station, on 23-27 October, 2018, to learn about station's research activities. A particular focus of interest was how the research ecosystem including interaction with local stakeholders has been created in about 15 years of operation.

Basic information about the Station can be found at its website: https://www.helsinki.fi/en/research-stations/taita-research-station. Documentary films about the Station and its scientific research processes have been prepared, see https://blogs.helsinki.fi/taita-research-station/movie-clips/.

Objectives and methods

In order to learn about how Taita Research Station has organized its stakeholder interactions, and implemented its "3rd mission" more generally, Mikko searched information through the following means:

- Following the field work of TAITASMART research team who visited several places in the surroundings, including Chala High School, several farmers' houses, a sisal plantation, savanna, and the Taita Taveta University university where meetings with local professors and deans were organized.
- Conducting a deep interview with Mwadime Mjomba, who is the Station Foreman and long-term senior member of staff of the Taita Research Station.
- Interviewing 4 stakeholders including coordinators Dawson Mwanyumba and Basil Lewela Mashanga from Taita Taveta Wildlife Forum, Ecosystem conservator Francis Mang'ee from Kenyan Forest Service, and Chairman Scaver Isuwirio Mwangua representing Taita Environmental Initative and WRUA (Water Resources Users' Association). The interviews followed a common template (see Appendix 1) and they lasted about 1,5 hours each.

Results

The questions covered three thematic areas: i) The role of Taita Research Station in Wundanyi/ local context, ii) How research can help addressing societal problems, and iii) Prospects for Taita Research Station. The main findings will be summarized next.

The role of Taita Research Station in Wundanyi/ local context

The role of Taita Research Station is considered to be critically important in the local economy. The station generates much relevant environmental information by using geoinformatics and other means. Such information include e.g. river study and general geography. The information has helped comparing historical development of the state of environment, and preparing management plans for forests and rivers.

Availability and accuracy of information is highly valued. Unfortunately, most of the plans are not using that data effectively enough, and use of data by local authorities has been limited.[1]

[1] Information by Petri Pellikka: Geospatial data produced by TRS has been given to the land survey office of the Taita Taveta County and the data is also used for the teaching at Taita taveta University.

The station has assisted local communities to develop livelihoods and helped in the acquisition of food, tree seedlings, and development of buildings. In a project on tree planting local farmers have benefitted economically because they have got access to tree seedlings which would have been otherwise difficult, and they have learned how to take care of them.

Taita Research Station has been educating and creating awareness on climate change.[2] Not so many people have gone through their trainings but more and more people understand what climate change is and its mitigation means. In their recent research they have taught how the effects of climate change will impact the crops and how people can adopt to the changed weather and farming conditions. The station has disseminated the information, and also given some money to nurseries and farmers.

There is a confusion about the institutional status of the Taita Research Station – on one hand as a research station owned by the University of Helsinki, and on the other hand, as TERRA, the local association behind the Station.[3] One interviewee thought that Station is doing data collection, whereas TERRA is there to do its implementation. Another interviewee said that last week he had met a local guy, who had "encountered with a person from the UH station, but could not understand how it was related to TERRA". The third interviewee had not heard at all about TERRA. The fourth interviewee though that TERRA is a project that is planting trees with some irrigation kits and recognized Chiesa[4] and ICIPE as related names. He pondered whether TERRA is a locally based group that collaborates with Chiesa or ICIPE.

Overall, not many people know that such a station exists. The county government is not fully engaging TERRA in using or doing research even though it could potentially fill in info to the gaps of knowledge.

Local stakeholders (e.g. public authorities, NGOs) have occasionally been involved in **scientific** collaborations. An example is the AFERIA[5] project (coordinated by Tino Johansson), which created likely scenarios to the Taita region by involving UH researchers and local NGOs. The scenarios pointed out the effects of doing and not-doing by the NGOs involved. The Chiesa project also brought in stakeholders. It was a new type of activity in this context. Collaboration with locals helped make research of the Station more visible. Beyond those examples there is limited collaboration. TTWF, however, is actively involved in bilateral collaboration. Taita Environmental Initative and WRUA, instead, do research by their own. In addition, WRUA and the Initiative positively recognize volunteering of some German scientists and a volunteer from Japan, who helped to develop briquettes from farm waste. (Now they are actively looking for funds to buy a briquette machine. The goal is to stop cutting trees, e.g. coconut shells can be carbonized.)

[2] Information by the coordinator of the Taita Research Station Tino Johansson: many of these functions have been advanced through externally funded projects rather than the Station itself. In some instances, however, such as the documentary film Water's Journey the Station has had its own productions to create awareness of its activities.

[3] Information by Tino Johansson and Petri Pellikka: Foreign entities cannot own land in Kenya (only to rent it up to 99 years), for which reason TERRA (Taita Environmental Research and Resource Arc) is the real-estate owner, from which the University of Helsinki rents the Station. In other words, TERRA is the local actor and non-governmental organisation, which runs the research station as UH cannot do it under Kenyan laws. TERRA was established by UH and for the needs of TRS. TERRA can also have such projects, in which UH cannot be a partner. Furthermore, various organisations and universities can use the premises of TRS, and that is why this confusion can take place. For example, last month, there were researchers from Yale university and IHE Del Various organisations, universities can use the premises of TRS, and that is why this confusion can take place. Over the years, there have bene more than 1200 overnights. In October 2018, for example, in addition to the Finnish research delegates, there were researchers from Yale University and IHE Delft.

[4] Chiesa stands for "Climate Change Impacts on Ecosystem Services and Food Security in Eastern Africa". The project was funded by the Ministry of Foreign Affairs of Finland and coordinated by ICIPE, the International Centre of Insect Physiology and Ecology (icipe) in Nairoby, Kenya. See, http://chiesa.icipe.org/.

[5] AFERIA stands for "Adaptation for Food Security and Ecosystem Resilience in Africa", see https://youtu.be/CbxZkckDmLI.

Taita Research Station has extensively involved ordinary people like farmers, disabled people, housewives and school students in its collaborative activities (see Photos 1 and 2).

Photo 1 Rector speaking at Chala High School that prepared to the exam period and seasonal break. TAITASMART team visited the school to plan research collaboration. Photo credits: Mikko Rask.

Photo 2 Station Foreman Mwadime Mjomba and his home farm, where TAITASMART research team carry out measurements related to climatic research. Photo credits: Mikko Rask.

There are several examples of particularly successful collaboration with local stakeholders. These include the tree planting project (in collaboration with TTWF) that contributed to the creation of corridors between fragmented forest areas. This was considered successful, since the (scientific) information provided helped to convince farmers to plant trees. Even though a small percentage of farmers was reached, it was considered significant. Before the tree planting projects contacts with local farmers by TTWF were more limited to public meetings etc., whereas now TTWF is now busy in explaining things to the farmers. There is now more trust and interest.

Another example is the use of local youth to guide visiting researchers in the forest areas. Those youth are compensated and this contributes to the livelihood of the families and also helps the community to have better attachment with the forest. "If you have to guide through people that come from far in the forest, you will feel that this surely is your own forest." The youth involved have passed schools and are over 18 years. (In addition to visiting researchers, there is little ecotourism, and the Department of Tourism is now working on it.)

Yet another example is butterfly farms providing pupae. Local people are involved in farming. The concept is an outcome of research by Taita Research Station and Kenya Forest Service. Through these and similar processes, researchers have make the local community to know the value of the local forest. "Forest is a service, but the county only understands money".

Additional examples of successful collaboration include seminars, workshops and trainings, organized by the Station, especially by the CHIESA project. Botanical garden was mentioned as a prospective and much awaited project. The garden will be along the river, which will prevent local farmers from stealing sand. The garden will be owned by local people (it is county land), researchers will just help in implementing. The project can bring in employment and assist in conserving land.

There are also some less successful experiences of collaborative activities. The CHIESA project did not fully utilize the data collected in developing water management plans e.g. to anticipate rains.[6]

There has also been research in urban development but it is less visible. Information is not accessible. These are done by students but they do not remain available through TERRA. The data is not on the public domain. More generally, much data has been collected but not all has benefitted society. Some research is done only to "pass the exam". There are researchers who come with no attachment nor input to the society. When researchers come through an institution, things get better. Soloists are less favorable.

One interviewee says the financing of the activities is not optimal. Quite understandably, the Station does not always have the money to give them, but it could consider new ways for providing money for implementing projects (e.g. WRUA has subcatchment management plan (SCUMP): this document tells what shall be done to increase food production and environmental protection. It also tells how to afforest, use biogas, solar energy etc. There is a vacuum between knowledge and target and implementation.) Could the Station help linking with doners?

The Station / TERRA has contributed to capacity building in some limited ways. TERRA needs to come in through the county. The county is not even aware of what activities they can link to. TERRA needs to co-operate. Chiesa is very good way of continuing, even local authorities are not using that information.

How research can help addressing societal problems

[6] The results of the climate project carried under the CHIESA project are publicly available, see https://www.york.ac.uk/environment/research/kite/resources.

Several severe social and environmental challenges facing the society were recognized. These include:

- Economic poverty and hardly hit economy. Most of time people don't get the harvest they plan, because the weather has changed: rains are unpredictable. They don't have the market for their products. "Harvest 10, get 10". Prices go up and life cannot be planned. (But if we got knowledge on what to harvest and have a storage of what to harvest, this could be the way out.)
- Corrupted politicians
- Environmental problems
    - Falling down of trees
    - Over consumption of water and redirection of rivers
    - Overharvesting of sand
- Social poverty: proper social networks are limited; religion has contributed to the neglect of traditional practices ("Christianity came in and distorted traditional norms and cultures"; "they have no culture of their own".)
- Ignorance and lack of awareness: People don't know even their own administrative units. They don't know about the importance of ecosystems. Limited awareness of climate change: nationally there have been strategies for creating awareness but not locally.

Research in general is considered by the stakeholders interviewed a relevant means to address social and environmental problems. Even though "research is key", attitudes to research have limited its success. Research has already done much to show how farmers can cultivate and harvest more effectively. Maybe there is now a need to change to study how to market the products. Marketing of the products relies currently only on middlemen. Market and value chain research is most timely now.

Taita Research Station has helped to introduce new technologies in the society. For example, GIS is completely new information at Taita. Master's programme on GIS which TRS develops to Taita Taveta University is very important. The Station has also helped using gadgets such as Google Earth.

Opinions are divided about whether local populations are aware of the climate change. All interviews agree, however, that people recognize climatic changes in their environment, such as streams that are drying. One interviewee says that below 50% of the population know the reasons behind, whereas another interviewee considers that "almost everybody knows what climate change and its effects are, because they have seen them: rivers are drying up, crops dying. In the lowlands they have therefore adopted drain resisting crops. People know that changes are due to destruction of the forests and introduction of foreign species."

Prospects for Taita Research Station

Taita Research Station is well known only to those stakeholders who have been directly involved in their activities and collaboration: "People are not very aware of the Taita, only NGOs and other directly involved. It looks like they are foreign people going to forests, but people don't know what they are doing there."

Feelings about the role of Taita research station are divided: others see it important, others see it as personal-gain activity. Many feel gratitude. There are also negative attitudes: some do not want to be involved, some talk negatively and there are some are suspicious about foreigners. The Station should pay attention how the benefits from PhDs will contribute to local development. "Research should expand to our livelihoods!"

The final question in the interviews was: "How would you see the future of the Station in your society?" Following recommendations were given by the stakeholders interviewed.

People in Taita should be able to embrace new digital methods and approaches. The county government should engage TERRA in doing many activities.

Expansion. Perhaps UH could have small pockets in polytechnics. TERRA should grow, come out with more information. Having "satellite stations" that people could visit. Fungu (?) is a new information college, TERRA could be there.

The Station could be more active in preparing legislation in the county and even national levels. TERRA should also have their own rules: what royalties are requested etc. UH could generate info; TERRA could be a data base / information provider (e.g. info on vegetation of certain spaces).

The current way has been good. Working with the community is good. A small population of Kenyan students could be involved to do studies through Helsinki University.

Taita Research Station should open up more. Having a chance to take part in the seminars. Come and educate farmers.

Other observations

In my visit, I have been impressed by many things: the scope and high quality of researchers involved; the international atmosphere; the relevance of work with burning local and global problems; the beauty of the nature; the safety of the station compared to the expected development country context. Professor Petri Pellikka is a devoted and enthusiastic director of the Station, highly knowledgeable of the local context and relevant research. He seems extremely well connected.

Some challenges include dangerous traffic, unpredictable weather conditions and less functioning internet connections. Distance is an issue for Finns travelling from Finland.

Conclusions

My conclusions are based only on a very limited materials and observations. Within that limitation, I want to express my view that Taita Research Station has been very successful in creating an ecosystem for academically and socially relevant research. The Station has been educating and creating awareness on climate change among local populations.

There is some confusion about the institutional status of the Taita research station, and it is a low hanging fruit to try to clarify this through more systematic communications.

Local stakeholders and citizens have occasionally been involved in scientific collaborations. As all stakeholders see that the local population is willing to develop their own environment, and there is a favorable condition to continue collaborations, expanding to areas such as citizen science (e.g. through the Smart Taita project) would be well justified.

There are several examples of particularly successful collaboration with local stakeholders. In particular, local farmers are interested to afforest and reforest but money and inadequate supply of seedlings is a bottleneck. Local NGOs are interested to help and they have some capacity to do so. There is a great potential for Taita researchers in either linking them with funders or create projects (e.g. St1 afforestation/reforestation project) that provide a full scheme and proper funding for it.

Some of the research conducted has not been adequately provided into the public domain. With minor investment in open access and visibility bigger societal impacts could be reached.

Since much has already been done to help in developing better farming practices, there might be the time to invite marketing researchers to help in studying value chains and marketing practices.

Taita Research Station will continue to have an important role in introducing and demonstrating the value of new technologies in society.

Some social scientist could study awareness of climate change among local populations. This is for better understanding the societal conditions and communicating about climate change science.

The Chiesa project has been particularly impressive in introducing collaboration with locals. This and other means of direct engagement should be continued. There is a continuous need to open up the activities of the Station through seminars, demonstrations, collaborative projects etc. The more there is interaction, the more prospects of developing positive conditions research activities.

There are many expectations about the role of the Station to fund and serve local (e.g. County) activities. The Station could consider a strategy to meeting in a realistic way. For example, could TERRA and UH owned Station be more clearly separated: one with a royalty and/or locality based approach, the other with research based approach)? Without clearly communicated mandates, the external demands can remain hardly to be met.

There seem to be high demand for the Station to open up its university education and open up more generally.

Appendix1: Interview template

Background to the interview

- Visiting Taita
- Interested in how scientific research can practically help societies and the environment. What kind of experiences there about collaborating with the Taita research station. Could something be changed in the future? What lessons can we learn? Any difficulties encountered? Wishes for the future?

Interviewee's background

Name

Position

Organisation and its mission

Your own work

Relation with Taita

About the role of Taita in Wundanyi/ local context

What is the role of Taita research station in the local economy?

In which ways have local stakeholders (e.g. public authorities, NGOs) been involved in scientific and environmental collaborations?

Has Taita research station activities involved ordinary people like farmers, housewives or school students? In which ways?

Are there some examples of collaboration that have worked particularly well? [e.g. demonstration sites?]

Have some collaborative projects or activities been less successful?

Has collaboration with Taita contributed to capacity building in some particular ways?

How can research help addressing societal problems

What do you see as the most severe social or environmental challenges facing your society at the moment?

Do you think that research in general is a relevant means to address social or environmental problems such as water management?

Do you think that the research that has been done at the Taita research station has been helpful in addressing that particular problem, i.e. water management?

Has Taita research station helped to introduce new technologies in your society? Some examples?

What about climate change. Do you think that the activities of the Taita research station have helped local actors better understand and address potential impacts of climate change in the local context? How?

Prospects for Taita research station

Do you think that the work of Taita research station is well known in your society?

Do you think that it is generally positively or negatively perceived?

Have there been some challenges or critical issues?

How would you see their future in your society?

Any suggestions for concrete actions?

Thanks!